CLAIMS:

1.   A method for the registration of a series of at least three temporally successively acquired images of an object, where individual images to be registered are transformed into registered images by means of an individual mapping rule, and where a similarity measure is used to determine the mapping rule, characterized in that a common similarity measure of all images is used to determine the mapping rules for the images to be registered.

2.   A method as claimed in claim 1, characterized in that the determination of the mapping rules is performed iteratively in that alternately one or more mapping rules are varied and that the similarity measure of all images is determined by means of said varied mapping rules until a given limit value or an extreme value is reached for the similarity measure.

3.   A method as claimed in claim 1, characterized in that the determination of the mapping rules for the individual images to be registered is performed in steps in that alternately in one step of the procedure each time only a single mapping rule is varied and the similarity measure is determined thereby until an optimum is found, and that in subsequent steps of the procedure each time a further optimum mapping rule is determined.

4.   A method as claimed in claim 1, characterized in that characteristic structures or characteristic image values in the images are used for the registration.

5.   A method as claimed in claim 1, characterized in that the mapping rules compensate for arbitrary geometrical variations of the object, notably translations, rotations, compressions and expansions.

6.   A method as claimed in claim 1, characterized in that the method is used for the registration of a series of medical images of an object to be examined, notably a series of

two-dimensional or three-dimensional images acquired by means of a medical imaging modality.

7.   A method as claimed in claim 1, characterized in that the method is used for
5   the registration of a series of images, notably images of the brain, that have been acquired by means of functional magnetic resonance tomography.

8.   A device for the registration of a series of at least three temporally successively acquired images of an object, which device includes a storage unit for storing
10   images and an arithmetic unit for determining individual mapping rules for the transformation of individual images to be registered into registered images, a similarity measure being used for the determination of the mapping rules, characterized in that the arithmetic unit is arranged in such a manner that a common similarity measure of all images is used to determine the mapping rules for the images to be registered.

15   9.   A device for the temporally successive acquisition of a series of medical image data of an examination zone of an object to be examined, which device includes a registration device as disclosed in claim 8.

20   10.   A computer program for carrying out the method claimed in claim 1 and/or for controlling the device claimed in claim 8.